[redacted]

Monthly Report

997244

25X1

PAR 243

31 Mar 66

SUBJECT: Briefing Print Enlarger (Prototype)

TASK/PROBLEM

1. Design, fabricate, and test a prototype briefing print enlarger based upon tests and observations of the breadboard equipment developed on the combined PAR 202/224.

DISCUSSION

2. Breadboard enlarger tests and mechanical design studies have been active during the month.

3. Four of the six lenses planned for black-and-white printing have been tested for use on "Polycontrast" type print stock. The print image quality is essentially equal to that obtained on "Kodabromide" print stock. The remaining two lenses, which have not been tested with "Polycontrast" material, are quite similar in optical design to one of the four lenses already tested. Therefore, we are quite confident that "Polycontrast" type print stock can be exposed on the BPE.

4. From the same series of tests on four of the six lenses, we are also confident that the five lenses providing magnification from 3X to 39X can be used for exposing color prints. Additional color testing, including making color prints, is planned for those lenses.

5. Tests to measure the stable temperature reached in the negative gate with extended exposure with a 500-watt source showed problems in the breadboard system in damage to the color filter and to the plastic condenser lens element. In the prototype enlarger, we will use a 300-watt projection lamp, as used in the breadboard enlarger, and a lamphouse arrangement to provide for the flow of cooling air at moderate velocity over the filters and condenser elements. The use of a second heat absorber element will also be considered.

6. The basic design arrangement has been established for:

a. Negative gate glass mounted on the lamphouse.

b. Interchangeable color filters.

c. Objective lens interchange mechanism.

d. Objective lens focus indicator mechanism with better ease of reading and means to compensate for negative base thickness, etc.

e. Print stock platen drive and focus/magnification table drum. Provision is made to display data for eight lenses (to include the two additional higher magnification lenses proposed in PAR 245).

Few, if any, detail drawings have been made on these subassemblies.

7. The negative transport system is in the process of redesign to provide for more economical manufacture and for the variety of interlocks required to protect the negative.

8. Our attempt to subcontract development of the required easel photometer was unsuccessful. We now propose to proceed with this development as a modification of the [redacted] EP-1000 Color Analyzer. 25X1

9. There is indication that the [redacted] Model P122 Focatron 25X1 can be used to provide improved precision in focus calibration of the enlarger. Designs for test patterns to be exposed on the Microscope Resolution Target Camera have been made.

10. Draft copies of the revised proposal and the tentative specification mentioned in the last quarterly report have been completed and are being reviewed.

PLANNED ACTIVITY

11. Continue tests on the breadboard enlarger.

12. Continue design studies where required and begin detail drawings where possible.

13. Design breadboard model for development study of the easel photometer.

14. Complete preparation of the revised proposal and of the tentative specification.

15. Make shop releases for fabrication of parts of the first prototype enlarger as detail designs are available.